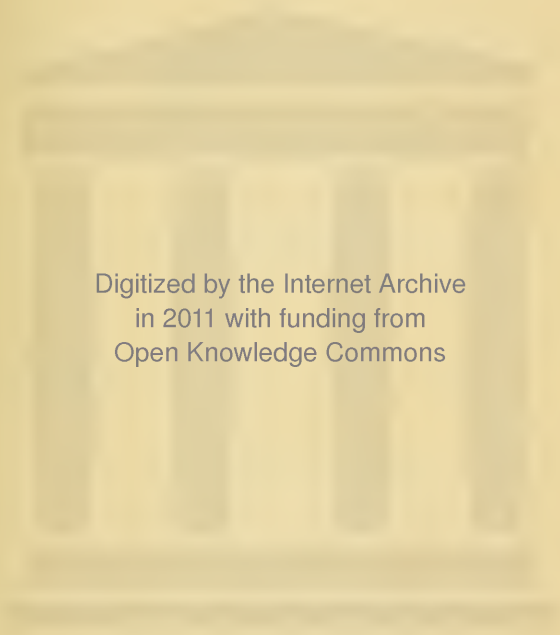
QUACKENBOS

cc

INAUGURAL DISSERTATION ... DYSENTERY



AN

INAUGURAL DISSERTATION,

IN WHICH, BY AN INDUCTION OF FACTS FROM

DYSENTERY,

THE

MITCHILLIAN DOCTRINE OF PESTILENTIAL FLUIDS

IS ILLUSTRATED.

SUBMITTED TO THE PUBLIC EXAMINATION OF THE

FACULTY OF PHYSIC

UNDER THE AUTHORITY OF THE TRUSTEES OF COLUMBIA COLLEGE, IN THE STATE OF NEW-YORK,

The Right Rev. BENJAMIN MOORE, D.D. President;

FOR THE DEGREE OF

DOCTOR OF PHYSIC,

On the 9th Day of November, 1802.

BY NICHOLAS I. QUACKENBOS, A. B.
Citizen of the State of New-York.

NEW-YORK:

Printed by T. & J. Swords, Printers to the Faculty of Physic of Columbia College.

1802.

TO

JOHN R. B. RODGERS, M.D.

Professor of Obstetrics and Clinical Medicine in Columbia College;

AND

SAMUEL L. MITCHILL, M.D. F.R.S.E.

GENTLEMEN,

IN the dedications of books, so much adulation has been frequently poured forth to the patrons of authors, as to have thrown the practice, in a great measure, into disrepute. When a young writer, however, in his first attempt to attract public notice, acknowledges the immense obligations he lies under to that gentleman who has, with unremitted assiduity, conducted him in the pursuit of professional knowledge; and when he expresses his gratitude to another, whose name is deservedly famous in the republic of letters, for his polite condescension and friendly assistance, while engaged in the prosecution of his studies; a dedication, in such a case, will be universally allowed to be proper, as silence would be culpable; and the highest expressions of esteem and respect can be only considered as the effusions of a grateful mind.

Impressed, therefore, with such sentiments, the author conceives it a tribute no less due to superior merit, than to principles of the purest gratitude and warmest affection, to dedicate this treatise to you, to whom he sincerely wishes a long and successful continuation of your truly valuable labours.

AN

INAUGURAL DISSERTATION

ON

DYSENTERY.

CHAP. I.

LITERARY AND PHILOLOGICAL REMARKS.

A GREAT controversy exists among Physicians concerning the true meaning of the words *Contagion* and *Infection.* Some have considered them as synonymous, and others have contended that they signify things of a very different nature. It does not, perhaps, become one just entering into the profession to decide on this point, upon which men of high character and eminence have differed so widely: yet I cannot suppress a belief that the two words did originally denote ideas very unlike each other, and

that at this time they ought not to be confounded.

There is scarcely an instance of two words in the English, Latin, or any other language, possessing the same critical meaning. Though in common speech, they may be employed as convertible terms; yet they are always found, on nice examination, to have a plain and sensible difference. The books of rhetoric and belles lettres inform us wherein "pride" differs from "vanity;" how "fatigue" is distinguished from "uneasiness;" and by what means "delight" varies from "pleasure;" with hundreds of other examples of the kind. These, though in common acceptation, reputed to be synonymous words, are in reality very far from each other in true signification.

What happens in the language of common life occurs also in the dialect of medicine. Words reputed by many to be quite alike, are known by the correct and learned to intend things widely remote in their meaning. Thus "Lues," "Pestis," "Contagium," and "Infectio," have been supposed by many as words of signification so nearly alike, that

in glossaries and lexicons they have been employed familiarly one instead of the other. But I shall endeavour to show that this is a mistake.

1. " Lues" seems to be derived from *luo, to pay the cost, make atonement,* or *suffer punishment for a crime or fault.* Hence *luere pœnas* signifies to suffer the penalty for an omission or breach of duty. And, for the same reason, " lues" is employed to mean any distemper brought on through or by a violation of moral obligation: particularly it applies to the disease consequent upon scortatory love, which has been termed emphatically " Lues Venerea," the malady incident to prostituted embraces. Such is the literal and original meaning of the word; but like other words, it acquired afterwards a greater latitude of signification.

Thus Claudian the poet writes,

" Hinc hominum, pecudumque *lues*, hinc pestifer aer;"

alluding to the sufferings of men and cattle; and Virgil goes a step further, and extends the idea to trees and corn:

" Arboribusque satisque *lues*, et lethifer annus."

2. Whether "Pestis" is derived from "pereo," to perish or to die; or comes from the Hebrew "paschat," importing to spoil or pillage, seems not necessary now to be disputed.* It is sufficient for the present pur-

* Since the above was written I have been favoured with a letter from the Rev. J. C. Kunze, S. T. D. on the etymology of this important word. The remarks of this gentleman, so well known for his biblical and oriental erudition, are so valuable that I insert them entire.

"*New-York, October* 13, 1802.

"DEAR SIR,

"Accept my hearty thanks for the permission of perusing your Inaugural Dissertation on Dysentery in manuscript, which I herewith return.

"The derivation of the word *pestis*, from the Hebrew שׁוּף may be a just one, as the word is used for undressing, Lev. vi. 4. Cant. v. 3. with which the Hebrews always connect the idea of weakening. From Judges xi. 33. it appears, likewise, that that verb has the signification of rushing upon somebody in order to destroy him. In the most places it occurs for plundering; as 2 Sam. xxiii. 10. Nahum iii. 16. it is applied to the mischiefs of the canker-worm.

"It seems, however, more probable to me, that the word arose from another verb, פּוּשׁ, *passah*, which signifies extending itself and making progress. So much I can assure you, that there is hardly a noun in Latin, Greek, English, or German, that signifies an object of the external senses, and certainly very few that denote abstract notions, which could not, in the most simple and obvious manner, be derived from Hebrew roots. It would be a pleasing task for one who had time to compose a Dictionary with such a view. A small one of that kind I have, of Jouchim Lange, under the title 'Subsidium Harmonicum.'

"If the Hebrew roots do not lead us to a noun of a similar sound in the more modern languages, they give us an idea of the nature of the thing, and in this striking disco-

pose to show that whether the former or latter etymology be adopted, *pestis* means some-

yeries are sometimes made. The lion, for instance, has seven names in Hebrew; one only resembles the modern sound—לביא, *labi*. The German word is *loewe*, with which the Latin *leo* has a similarity. This is derived from לבא, carrying the notion of devouring: but all the others point at particular properties of that animal, as ארי, at tearing to pieces; כפיר, at its strength; ליש, at its superiority; from which comes the Greek λις, a lion.

" The chief idea the scriptures connect with the plague, I find, is that of diffusing itself, making slow, and, to the senses, imperceptible progress. Hence pestilence is said to walk in darkness, Ps. xci. 6. בשה is the proper verb denoting this, and is, in many places, used for the plague, as Lev. xiii. 5, 6, 51, 55. xiv. 39. The Hebrew *h*, I must here add, is, for grammatical reasons, often changed to *t*.

" Perhaps you, Sir, and your medical brethren, will pardon me, if I draw from this the following conclusion:—Epidemical diseases, which, as you justly have observed, may arise from various causes—as from a vitiated atmosphere—from provisions used by people living in a district together, &c. have not the name of pestilence in the ancient languages, and should, perhaps, not be called so in the modern. Pestilence, in my opinion, arises from a matter concealed somewhere, and in a progressive manner diffusing itself like the smoke of a fire-brand, with this difference only, that as no carbone is mixed with it, as with the smoke, this matter remains invisible.

" That you step forth in support of the Mitchillian doctrine is a matter peculiarly pleasing to me. In Germany this doctrine gains ground every where. The King of Prussia has, on account of this, called a renowned physician, Dr. Reiche, with a handsome salary, to Berlin; and I am happy to hear that opposition to it in this country is on the decline.

" I am, with particular esteem,
" Your most obedient, humble servant,
" JOHN C. KUNZE."

thing ruinous and destructive; generally applying to such calamities as cannot be prevented by human foresight. Pestilence is therefore coupled by Virgil with the anger of the Gods:

"Pestis et ira Deorum stygiis sese extulit undis."

And again there is classical authority for the following:

"Me eruciat sævo *pestis* violenta veneno;"

showing that the word originally signified almost any unavoidable distress; and, in a limited sense, applied particularly to disastrous sickness, and endemic distempers.

3. No person doubts that *contages, contagium,* and *contagio,* are fair derivatives from *contingo,* to touch or be in contact. Their primitive sense doubtless was, "Diseases communicable by approximation of skin to skin." Hence these forms of expression apply peculiarly to *gregarious* animals, as sheep, cattle, and the human species. Creatures of these kinds, herding and mingling together, associating while they feed, and when they lie down to rest, are remarkably prone to catch diseases by *contact.*

In this strain Melibœus assures Tetyrus that (Virgil, Ecl. i. v. 51.) the noxious contagion of the neighbour's flock shall do no injury to his:

" Nec mala vicini pecoris *contagia* lædent."

The forms of expression, when either of these words is used, are adapted to give an idea of something creeping, or passing off from one person to another—thus:

" Dira per in incautum *serpunt contagia* vulgus."

And again:

——————" Dira per omnes
Manabant populos fœdi *contagia* morbi."

And also:

" *Invadunt* totum *contagia* morbida regnum."

From these authorities it would seem plain, that the popular and obvious meaning of *contagion* could scarcely be misunderstood, since it respected merely that class of disorders among men and brutes, which were imparted from one to another by *contact*, as they fed, slept, played, and associated together.

Contagion therefore is that peculiar, morbid

poison, which is prepared in the bodies of living animals, especially of those which flock and huddle in crowds, and is wiped off, or is communicated by touch from those that are contaminated, to those which too nearly approach them. Such was the common sense of mankind, while it remained unwarped by prejudice and forced meanings. It is a pity that such unlettered, though strong common sense was ever departed from.

4. "Infection" was certainly derived from *inficio*. This word was of very various and questionable meaning among the Romans. It is compounded of *in*, negative, and *facio*, to do, signifying to *undo*, or rather to violate, to corrupt, to taint, or to tincture any thing. To be a little more particular—the verb *inficio* expressed that property of an agent, by which it embued the substance upon which it acted, manifestly and glaringly changed its qualities, and altered it materially from what it originally was. The substance or thing so altered was said to be *infected*.

One of the most frequent and distinguishable cases of *infection* was the change which white cloths underwent by dying. The

colouring material, or the dye-stuff, was the agent, and the changing or vitiating the white colour by its tinging property, was said to *infect* or *stain* the fabric; its whiteness was alleged to be *overcast, polluted, spoiled,* or *undone.*

So when the *clear* and *fine* atmosphere was vitiated by mixtures of *noxious vapours,* and *poisonous gases* extricated from corrupting bodies, it was declared to be *infected.* The pure air, like the white cloth, had acquired a foreign tincture; and this effect, wrought upon the respirable and healthy atmosphere by the adventitious material with which it was charged, was, in a figurative sense, denominated *infection.* The air so vitiated or corrupted, so different in its constitution, and so altered from what it was, literally speaking, had become *infected,* or "*infectus,*" that is, *undone,* or *spoiled* for the purposes of its primitive and ordinary destination. Air thus vitiated was *infected air.*

In like manner, a healthy animal might be *infected* by coming into an atmosphere of such a tincture, or so corrupted. An external agent of this kind could infect or undo

the healthy frame. When this act of *undoing*, or, in other words, of *unfitting it for the performance of its accustomed and useful functions*, was accomplished, the constitution was affirmed to be *infected:* as was observed in a preceding paragraph, infection was, in one of its senses, but another term for dying or imparting colours. In many forms of distempers excited by pestilential air, there was observed, in addition to the other symptoms of debility, &c. a remarkable change of complexion. In many cases the patients looked almost as if they had been dyed, or coloured with some tinging material. This confirmed the notion of infection having penetrated the body, and wrought a change, as evident to the eyes of others as uncomfortable to the feelings of the individual himself. And by this process of the human mind, it seems to have been accepted and understood, that a white garment put into dye-stuff, pure air exposed to septic exhalations, and a healthy animal acted upon by a pestilential atmosphere, were all examples of "*infection.*"

The term was applied to another case. When any thing noxious was added to whole-

some drink, it was declared to be *infected,* that is, to be undone or spoiled for the natural and intended purpose of slaking thirst healthily. The beverage was infected; *i. e.* the pure liquor has had something infused into it, by which it has been vitiated or poisoned. Hence the verse can be interpreted:

" Pocula si quando sævæ *infecere* novercæ."

Having thus discussed the history of these words, I shall observe that they all refer to popular and not to scientific distinctions in things. They may perhaps answer well enough for the purposes of ordinary conversation, but possess not sufficient distinctness for those of medical and philosophical language.

Considering the matter with the best information I have had, there appear to be but two great operations in nature, for preparing or engendering noxious fluids. The former of these is accomplished by the instrumentality of the living vascular action of animals, and it may be, of vegetables. The latter is produced by a putrefactive process taking place in certain organized bodies after

death. To signify these two grand natural processes, there ought to be invented two suitable and appropriate terms. But as such an innovation in the technology of the profession might not be right, I shall employ the two words, *Contagion* and *Infection*, to denote them.

When noxious fluids are produced by living vascular action, I call them *Contagion:* When they are the offspring of putrefaction, I term them *Infection*.

But as this subject has been stated with great perspicuity in that valuable periodical work, the Medical Repository; a work which is an ornament and an honour to our nation, as well as our city; I shall quote the passage (vol. v. p. 186.)

" *That vitiated product of living vascular action*, which can excite in a well person a disease like that by which itself was produced, and continue indefinitely to do so after being transferred from one body to another, will be denominated *Contagion;* and lues, vaccinia, measles, and small-pox, will be considered examples of it. On the other hand, that *venomous offspring of putrefaction*

going on in some of the kinds of organic matter *after death, or separation from the living frame,* which disorders the healthy functions without being specifically communicable, and without the power of communicating itself, will be called *Infection;* and typhus, dysentery, plague, and yellow-fever will be given as instances."

CHAP. II.

MEDICAL AND PHYSIOLOGICAL CONSIDERATIONS.

WE now proceed to the *medical* history of our subject. In describing this, we shall depart from the common mode of mentioning the symptoms, diagnosis, &c. and offer such reflections as have occurred.

It appears evident that the combination of elementary substances, which, when applied *externally,* would occasion the disorders commonly called "fevers," would do the same, if they came in *contact with the internal parts.* This is well shown in a piece published first in the New-York Magazine, in 1797, and

afterwards in the Medical Repository for that year. The principal points which appeared at that time, were, that septic acid frequently existed in the alimentary canal as an exciting cause of fevers, and that neutral salts were more useful than other cathartics in such cases, because a great proportion of them could neutralize *that acid* by means of the superior attraction existing between it and their alkaline bases.

Doctor William Bay, who graduated in physic, in May, 1797, in this college, chose *Dysentery* as the subject of his Inaugural Dissertation; and having adopted the above principle, endeavoured to show that if septic acid was the exciting cause, *neutral salts, in which potash and soda are united to the weaker acids,* were very efficacious remedies. This dissertation fell into the hands of the monthly reviewers in London, and the writer of the criticism upon it rejected the doctrines contained in it, both practical and theoretical. And more recently, in one of the numbers of the Monthly Review, for 1801, the writer of the criticism upon Dr. Chisholm's Essay on Malignant and Pestilential Fever, speaks

disrespectfully of that excellent work, because the author has advanced doctrines derived from the same source.*

Anatomists have agreed that the cuticle reflected or continued over the lips at the mouth, passes down the pharynx and œsophagus, and after lining the stomach and intestines, both small and great, is connected again with the true skin at the verge of the anus. The inside of the body then, or what is called the alimentary canal, in all its turnings and windings, is a surface coated with

* Vide the note, page 14 of Chisholm's 2d volume.

" See the case of the manufacturers of soap and candles in the city of New-York, stated and examined, &c. published by the association of tallow-chandlers and soap-makers." The advocate employed on this occasion was Dr. Mitchill, the ingenious and learned Professor of Chemistry in Columbia College; and the scientific knowledge, the general erudition, the good sense, and the elegant language displayed in the course of his argument, in support of his clients, must secure the admiration and applause of those who read his " Remarks on the Proceedings of the Legislature of the State of New-York;" and his " application of the *Mitchillian Doctrine* of septic fluids, to the processes carried on in several branches of handicraft business, particularly the making of soap and candles," &c. Without a hyperbole, he may " be considered," to use his own language, " as having caught nature in her work-shop, examined her collection of raw materials, and discovered which of them she employed in this fearful manufacture (the acid of putrefaction or infection), which, like the poisoned shirt of Hercules, enwraps the wearer too closely to be shaken off." p. 33.

an epedermis in connection with the muscular, vascular, and nervous parts beneath, *without the intervention of a true skin.* It resembles, in this respect, cicatrization on the limbs, or other external parts of the body, where spots that had been ulcerated, are skinned over after a destruction of a portion of the *cutis vera.* Such places are tender, and more liable than others to accidents.

We call the stomach and intestines a part of the *internal structure* of an animal. There is one sense, in which this is hardly correct, or is apt to mislead. Their internal structure is as much an inside as the barrel or bore of a *pump* is the inside of that machine. They are open at both extremities, the substances they transmit are forced in at one end, and expelled at the other, or at some intervening outlet. Air and water move easily through, and are applied freely to their insides as well as to their outsides: and besides those two fluids, a variety of substances mingled with them, even to the thickest consistence that can pass the valves, are pushed along their cavities. The bore of a pump is thus, strictly speaking, an outside surface, or at least as

commonly and indeed more exposed than that which is ordinarily termed the outside. The perforation through the body of an animal, extending from the mouth to the anus, ought to be deemed an *external* surface, or, at least, a surface as much or more exposed to harm and accident, than any part of the external or cuticular surface. It is the thoroughfare of every thing put into it for the purposes of hunger, thirst, gluttony, intemperance, and medicine. The alimentary canal being thus, like the pump, in almost constant action, and besides the perpetual conduct of foul and noxious matters, will often get out of order, and of course stand in need of frequent repairs.

One of the accidents to which this internal apparatus is frequently subjected, is called "*Dysentery*," and has been known by a synonymous word from a remote antiquity.

Such persons as subsist chiefly on oily, gelatinous, farinaceous, and saccharine food, are very little incommoded by this disease. On the other hand, the victims of its violence are commonly such as eat animal food heartily, particularly that which is *lean*. In the

American and British service, both by sea and land, *dysentery* is nearly connected with the *beef-ration*, which is dealt out to the seamen and soldiers. Our experience in New-York has convinced us of the readiness of *beef* to corrupt, and of the offensiveness and virulence of the gases which exhale from it during that process. We know these vapours have very often produced *dysentery* in the repackers and salters of beef, who were exposed to it. And from a variety of testimony it may be concluded, that this deleterious effluvium from *beef* is septic acid (the acid of azote) in a volatile form. Of a number of persons exposed to this septic effluvium, some were seized with *dysentery* and others with *fever*. Such a disposition and quality we know to reside in *beef*, which I have given as an example, and doubtless inhere in all other *lean* animal substances.

Beef, in a corrupting condition, called tainted or semi-putrid, is not an uncommon article of diet in armies and navies. Whether this vitiation arises from the small quantity of muriate of soda (sea salt) or from an adulteration of the muriate of soda applied,

or from an inherent predisposition in the beef to spoil, the ultimate effect is nearly the same. It becomes charged with that *acid,* which is capable of producing those mischievous effects in the alimentary canal, the aggregate of which is denominated *Dysentery.* Or, as the septic poison in the meat acts upon a secreting surface, it may cause a *flux* in some constitutions, as well as a *dysentery* in others, and act as a cause of some species of *diarrhœa.* If absorbed, it stimulates the sanguiferous system to morbid action, and induces that condition thereof called "*Fever.*" Being of an acid quality, it irritates the orifice of the common bile-duct, and provokes a more free secretion and supply of the gall. This *alkaline* fluid from the liver, in moderate forms of disease, is generally excreted copiously, and thus neutralizes the exciting cause. As the bile is plentifully prepared and discharged, the diseases in which it abounds are commonly called "*Bilious;*" and the ordinary opinion is, that the bile itself is the peccant matter or cause of the malady. But this notion is very erroneous. The bile is but the *effect,* and not the *cause.* And the reason

wherefore it runs so readily and plentifully, is to correct the mischievous quality of the offending cause in the stomach and intestines, whether engendered there or taken in from without: accordingly, some of the worst forms of *dysentery*, and other malignant distempers, are those in which the bile is excreted from its viscus in scanty proportion, or not at all.

Though the alimentary canal may receive the septic acid or exciting cause of *dysentery* from the atmosphere, or in tainted beef or other *lean* animal substance, these are not the only ways by which it may come in contact with the stomach and intestines. Lean animal matter, as beef, mutton or fish, may be eaten in its entire and uncorrupted state; but it may be so long retained in the body, especially in the large intestines, that it may corrupt, and septic acid be formed from it there; and this accident is very liable to befall those persons who are subject to indigestion and costiveness, or, in other words, who are not regular in respect to alvine evacuations. In such cases scybala may be formed in consequence of too great absorption of the fluids of the

intestines, and from the residuary lumps of hardened fæces, containing *some* septic acid, and engendering *more*, is the spasmodic condition of the colon induced.

A cause of dysentery may thus be received into the body from without, or it may be produced within it from the decomposition of such articles of food as contain septon or azote. The former is the distemper deemed *infectious* or *endemic;* the latter, the *sporadic*. But it may so happen on board a ship or in a camp, that many persons of a crew, or a detachment fed on *similar rations*, may fall sick together from the unwholesome quality of their food, without any vitiation in the air at all: and the disease, though strictly *sporadic*, may thus assume the guise of an *endemic*. The like may happen in neighbourhoods and districts in the country, where the inhabitants live very much alike, or subsist on nearly similar articles of diet, and feed on meat cured with muriate of soda (generally adulterated, and rarely or never purified in America), bought at the same store, and part of the same parcel.

If there should happen a condition of the digestive organs, wherein the gall should

cease to flow at a time when *oxygenated septon,* from any of the sources already mentioned, abounded in the alimentary canal, disease might be expected to ensue. But such a disorder would not be a *mere jaundice,* from a retention of bilious matter tinging the skin with an icteritious or yellow hue, but would be a disease *from poison,* causing the stomach and upper intestines to invert their motions and expel their contents; creating pain, flatulency, heat, and inward distress; and stirring up more or less of "*fever*" by an imbibition of some of the *septic venom:* to all which there might be superadded the peculiar and characteristic symptoms of *dysentery.* For violent fits of the American yellow fever have occurred in cases where the stomach and intestines had been much disordered, terminating favourably after tormina, tenesmus, and slimy stools mixed with blood. Whence the connection between *yellow fever* and *dysentery* can be discerned; *both* arising from the same general cause, and chiefly differing in the part of the body particularly invaded by that cause. Dysentery may exist without being accompanied with yellow fever, and

yellow fever may arise unattended by bloody-flux. Yet though it may be easy to distinguish the extremes, there is nothing more difficult than the establishment of the limits between the two, in cases where they are blended and incorporated with each other. In short, though *Nosology* may distinguish, and sever and place them far asunder, *science*, with better information, traces their genealogy from one original, and finds them intimate kindred, descended from the same parent.

This is by no means a new opinion. If we look back into history, we will find that the ancients were also well acquainted with this fact. Diodorus Siculus, who has always been considered a correct and faithful historian (lib. xii. cap. 2.) gives an account of the expedition of the Athenians under Eurymedon and Demosthenes against Syracuse. This was about the 410th year before the Christian æra. A *plague* broke out in their camp adjoining the city, owing to an *offensive marsh* in the neighbourhood, and raged and increased to such a degree, that a great part of the army perished.

Diodorus (lib. xiv. cap. 7.) describes, with some detail, the distemper which invaded the Carthaginians in the year before Christ 394, when encamped on the same ground, near Syracuse, that had been formerly occupied by the Athenians. He calls it a "plague;" says it was first ascribed to the vengeance of the gods, for the rifling and plundering of the temples of Ceres and Proserpine. But he considers the *place itself* as the great occasion of the disorder. The ground was marshy and spungy—great multitudes of men were thronged together—it was summer—the nights were chilly and the days intolerably hot—the pestilential air was blown upon them by a southerly wind—there was no idea of importation from foreign places—the symptoms were "*catarrhs* and *swellings* of the *throat*, which were caused by the *stench* of the bodies that lay unburied, and the *putrefaction* of the soil. Then followed *fevers*, *pains in the back*, *heaviness of the loins*, *dysenteries*, *blotches* and *boils* over the whole body. Some ran mad, beating every one they met."

The exciting cause of dysentery being known, there is no difficulty in administer-

ing remedies which, in most cases, will destroy or expel it. From the known efficacy of alkaline salts to correct putrid taints and tendencies in beef, and in all animal substances, *pot-ash* and *soda* present themselves first on the list of antidysenteric remedies. We know they can correct offensive and virulent qualities of the fæces *out of the body*, or in beef after it has been eaten, and naturally enough can believe they will act in a similar way *in the intestines*, provided they can by any means be conveyed there.

Notwithstanding the prejudices of some against the employment of *alkalies*, and the belief of others in their being unwholesome and improper in the extreme; that *acids* are the great and useful antiseptics, and of course, by the rule of opposites, that *alkalies* are endowed with qualities directly the reverse: Notwithstanding all this, I am one of those who have an entire confidence in the superior excellency of *alkaline* medicines.

It is known that in some parts of our country the persons who practice the veterinary art, give to horses, and other creatures, *weak alkaline ley, made by boiling wood ashes in wa-*

ter, for the colic and scowers. And occasionally the country people will, in similar diseases, take some of the like medicine internally for their own relief. Besides, it is said that during a severe dysentery which prevailed among the Indians near Detroit, some years ago, the prescribers of medicine among the savages administered weak ley of pot-ash to the sick, and with admirable success.

A strong solution of muriate of soda, diluted with a third of sharp acetic acid, has been often administered to dysenteric patients, as is credibly reported, with excellent effect. After recommending this remedy, and witnessing the operation of the brine, swallowed as hot as the patient could bear, in doses of two or three table spoons full, repeated frequently, I have had reason to think favourably of it, as an antidysenteric prescription. And what seems more capable of being deduced in favour of alkalies in the intestinal canal, is the known constitution of the gall; a secreted fluid abounding with the very alkali which is the basis of common salt, and in times of health perpetually mingling with the alimen-

tary mass, for the purpose apparently of preventing its degeneracy to something noxious. It seems therefore clear, that a solution of carbonate of soda in water might be employed at any time in aid of the bile, or in some measure as a substitute for it if deficient, and thus allay the uneasiness and pain frequently caused by it.

We know that gall has been long employed by dyers and scourers to cleanse silks and delicate stuffs, and to free them from spots and stains; it is therefore not improbable that this saponaceous liquid acts in a like manner in the alimentary canal, deterging and cleansing the whole passage, as far as its strength and virtues extend.

Alkalies promise to be useful on another account. The discharge per anum in some of our pestilential and dysenteric diseases, are so sharp and corrosive as to excoriate the skin around the anus, and to excite inflammation almost wherever they touch an external part.* When shirts, sheets, or drawers

* In Lowthorp's Abridgment (Phil. Trans. vol. iii. p. 232.) may be seen an account of Mr. Bayle's Experiment related to the Royal Society in 1664, of the antiseptic power of fine urinous spirit, or spirit of sal ammoniac, in

are besmeared with these or any other kinds of fæcal matter, alkaline leys are always competent to destroy their activity, to carry them off, and to leave the garment clean and uninfected in the hands of the washer.

If alkalies can accomplish these desirable objects in alimentary *egesta* immediately after their evacuation, there remains no doubt of their capability to accomplish as good a purpose, if *injected* into the *intestinum rectum*, and made to penetrate the colon itself.

In addition to all this, it seems to be established as a truth, that in those parts of the United States where carbonate of lime constitutes the great strata of the earth, and where of course the water contains a considerable quantity of lime in solution, dysenteric complaints are comparatively rare and mild,

preserving blood yet warm from the veins, from coagulation and from *putrefaction* a long time. This experiment, he says, he devised to show the " amicableness of volatile spirits with the blood."

In the same volume (p. 115.) in a paper on dysentery, may be seen the writer's opinion that the sharp corrosive humours in that disease, " are of the nature of *aqua-fortis* and *spirit of nitre*, and which eat away the tunicles of the intestines and mouths of the vessels." For correcting this he adds " the absorbent earth crabs-eyes to his prescription."

The lime-water which the inhabitants of these situations constantly drink, acting always as a *preventive* of the disease, or as a *corrector* of its exciting cause within the body.

We shall next consider which of the alkalies will be preferable, and also what form or combination of either will answer best the purpose of prescription.

To give the alkalies in their simple or caustic condition would be injurious: the disease would be aggravated, not cured by such harsh medicines.

I begin with pot-ash (salt of tartar) and would give the carbonate in dysentery, making a solution of it of such a strength as, on being tasted, should not affect unpleasantly the mouth. To this sugar may sometimes be added to help the taste. A table spoonful may be given every quarter or half hour, according to circumstances, until the patient experience relief. And in order to render its effects more speedy and certain, enemata of the same weak alkaline solution should be given from time to time, either alone or with broth or starch; occasionally with the addition of a small quantity of thebaic tincture

to the mixture taken by the mouth, as well as to that administered per anum. Much benefit will, I presume, be derived from this mode of treatment.

On trials with carbonate of magnesia, it appears to be not sufficiently strong and efficacious. Its powers are greatly inferior to carbonate of pot-ash. Though its qualities are good as far as they go, yet they are, however, too feeble to be relied on in cases where decisive and energetic practice is required.

The disagreeable taste of pot-ash is sometimes objected to by patients. When this happens, carbonate of *soda* may be employed. This is much less unpleasant, and may be tasted and swallowed with ease: indeed, on reflecting that soda is the *basis of the bile*, and of the *culinary salt*, which we constantly and by instinct as it were, swallow with our food, it appears to be more natural and friendly to the constitution than either pot-ash or magnesia; and for this reason it is that neutral salts, with a basis of soda, are preferable to all others, for their efficacious, safe and kind operation. The bringing them more generally into use would be a great improvement in the practice of physic.

The formula of giving carbonate of soda in dysenteric cases is, a solution in water strong enough to be taken into the mouth and stomach without smarting, or any other inconvenience. The dose is from a tea spoonful to two or three table spoonsful; and the times of administration are every quarter or half hour, or every second and third hour, as the symptoms seem to require. Portions of the same solution are applied in the form of glister, to be retained; and they are very useful and efficacious in allaying tenesmus, and diminishing the frequency of evacuations. I have seen several cases of dysentery cured with this plain prescription in the *two* modes just mentioned.

Sometimes, however, the carbonate of soda may be dissolved in mint-water, instead of common water: and occasionally the addition of some laudanum, where the patient suffers much pain, has had a happy effect. I think where alkalies are prescribed there need be less hesitation to administer opiates than in conjunction with any other remedy. Doses of ol. ricini, or of ol. olivarum, may be occasionally interposed with advantage, as

mild oils have a tendency to obtund the acid exciting cause of the malady. The same quality probably belongs to all fat and greasy substances that are not rancid. On the contrary, *lean* meats are found universally bad for dysenteric patients, who ought always to be interdicted their use. I have known a convalescent relapse into dysentery after eating a *dinner* of *beef*. For food we would recommend *rice, tapioca, sago, panada,* and generally *farinaceous* and *saccharine* substances; and likewise soups and jellies, if the sick have an inclination for them.

In all these kinds of food an advantage would be derived from sprinkling in as much *muriate of soda* as can be conveniently and agreeably done.

By these means the alimentary canal can in general be sufficiently alkalized. We alkalize our clothes and the outer surface of our bodies with solutions of soap and weak leys, to keep ourselves clean and healthy. The intestines are alkalized by the *bile,* and their internal surface is protected by the mediation of that admirable liquid, which is prepared and applied without our knowledge or con-

currence, by the most excellent provision in the animal economy. When the gall is insufficient, it becomes the physician to alkalize the intestines and their contents, by something as nearly allied to the bile as he can find. *Soda* is such a substance. Perhaps camomile, gentian, or some other bitter, would improve it, by making it resemble the natural secretion more nearly.

The *carbonates* of pot-ash and soda seem to be better in dysentery than the combination of those simple salts with stronger acids. They are more easily decompounded, and while the septic acid of the intestines joins the alkalies, to form *septites* of pot-ash and soda, the carbonic acid is extricated to produce the agreeable effect of which it is supposed capable, and for which it has been long celebrated. But it ought to be remembered that the *tartrites* of *pot-ash* (soluble tartar), and of *soda* (Rochelle salt), and *phosphate of soda* are very valuable remedies. And to these we may add *muriate of soda*, by which is meant the compound formed by mere muriatic acid and soda, and not the adulterated and heterogeneous composition forming the

sea-salt commonly in use. No objection ought to arise against the use of these alkaline remedies, in ordinary cases, as being too fiery and pungent; nor even in cases of inflammation and ulceration of the intestines: for it is shown, in a memoir in the Medical Repository, by Dr. Mitchill, that carbonates of potash and soda are very substantial helps to the surgeon, when applied to the surface of foul and eroding ulcers. And from their internal use, another good effect will ensue: the fæces will possess very little fætor, and no infection. Nurses and attendants may perform their services commodiously, and without hazard of *catching* the distemper. Under the use of these remedies it can never spread.

Alkaline remedies, excellent as they are, may be abused; and for want of proper care in their administration and continuance the customary good effects may not be produced by them: but they can do a great deal; *for they can overcome the acid exciting cause of the dysentery,* and *prevent its further mischievous operation upon the intestines,* and *its absorption into the system.* They may do all this, and yet not be capable of curing every case that presents.

Inveterate dysenteries and fluxes will often baffle medical skill, and end fatally, in opposition to alkaline and all other remedies. After the stomach has lost, in a considerable degree, its power to digest, the liver to furnish bile, the lacteals to imbibe their appropriate fluid, and the intestines to perform their peristaltic movements, there is no great prospect of recovery, even though the exciting cause of the malady should have been entirely expelled from the body. Still it appears, from repeated trials and careful observation, that the alkaline plan of treatment which we have described, is preferable to every other. Rhubarb, ipecacuanha, cerated glass of antimony, calomel, and Peruvian bark, seem to be very inferior remedies. None of them promise to do much good, further than as they operate as cathartics. And for a purgative purpose, the neutral salts which we have enumerated possess a decided superiority.

THE END.

Date Due
